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DETAILS OF DISCOVERIES MADE AT THE ANCIENT LAKE-HABITATIONS OF SWITZERLAND.*

MR. EDITOR,—Your excellent Journal contains, in the July Number for 1859, an article giving an account of the lake-habitations discovered of late years in Ireland and Switzerland. After the general view given to your readers, it may be not uninteresting to examine in detail one of the localities which has just furnished new data concerning the industry and mode of life of the most ancient inhabitants of Europe.—Yours with respect,

Lausanne, 30th October, 1859.

FREDERIC TROYON.

RAILWAY excavations very frequently assist the researches of the archæologist. It is in this way that an unexpected discovery, made near *Concise*, in the latter end of July, 1859, has revealed the site of a former lake-habitation which is peculiarly rich in the remains of the "stone-period." A steam-dredge, which was set to work opposite to the nearest houses of *Concise*, to procure materials for a portion of the railway which passes the lake, soon brought up a number of ancient remains belonging to habitations of a remote antiquity. Numerous persons having been attracted to the spot as soon as the discovery became known, the workmen collected with great care every article which they thought they might obtain a sale for. To give an idea of the number of objects found on this site, it may suffice to mention that there have been collected in the museum of Lausanne nearly a thousand; in that of Yverdon, from 800 to 900; the museums of Geneva, Berne, Neuchâtel, and Chaux de Fonds, possess numerous specimens; as also the collections of the following individuals, Count Pourtaléi, at La Lance, Dr. Clément, at St. Aubin, Messrs. Rey and De Vevey, at Estavoyer, and Colonel Schwab, at Bienne. Many articles have been sold to foreigners. Professor Agassiz has purchased a number for the museum which he is establishing in America, and numerous specimens are scattered in the hands of various other persons.

The objects discovered are remarkable for the variety of their forms, for the large use made of bone in their construction, and for the stag's horn handles found in several of the implements.

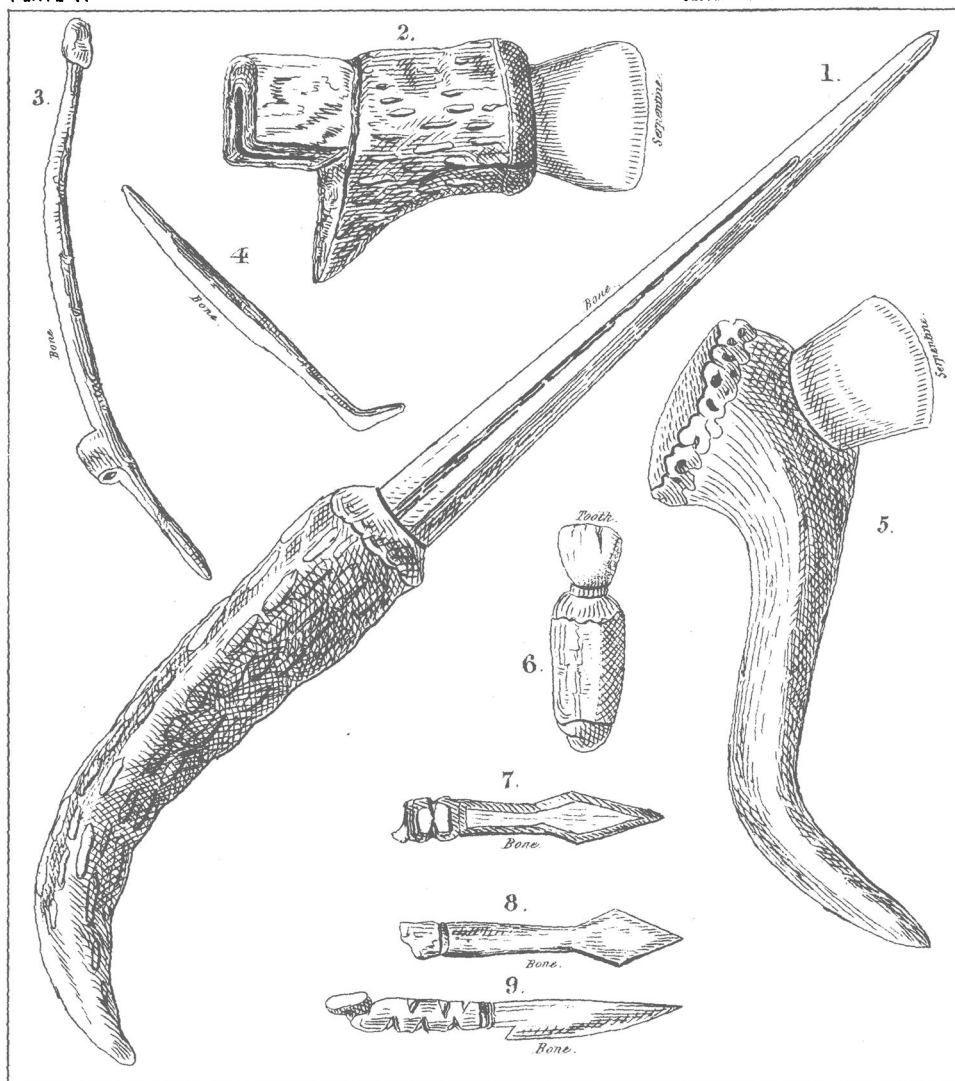
* Though this paper relates to discoveries made in so distant country as Switzerland, it throws so much light on the uses of the various ancient stone implements found in Ireland

(especially in the North), that we have no hesitation in presenting a translation to our readers.—[EDIT.]

Before describing these various kinds of articles, however, it is necessary to add that the desire of gain has induced some of the workmen to fabricate forgeries which have been sold to a considerable extent. At the commencement of the discoveries, which lasted during the five weeks that the dredge was working on this spot, these forgers confined themselves strictly to imitating the genuine forms, and giving a handle to an instrument which had lost its own one; but subsequently they invented new forms for which there was no authority in antiquity, by joining together different articles found in the lake; and at last, emboldened by the ignorance of some purchasers, they manufactured various implements out of common shore pebbles, bones, and stag's horn, amusing themselves by producing something uncommon. These forgeries circulated by the workmen will have a tendency to throw doubt on the authenticity of certain articles, and among others, on the manner in which they were provided with handles. Nevertheless, before regarding as a forgery any particular form reproduced by a workman, it is proper to ascertain whether or not the type of this form has been really discovered. Taking this as a rule, I am able to bring forward as genuine the following objects, either from having myself seen them taken out of the water, or from the testimony of Mr. Rochet and Dr. Clément, who were present almost every day at these discoveries, and collected a large number of specimens at the very time when found. On the other hand, every one of the articles which I describe bears in itself a character of antiquity which the forgers with all their skill have been unable to imitate.

The spot on which the dredge was worked is situated at about 300 feet from the shore. It presented the appearance of a hillock covered with several feet deep of water: its surface was composed of mud, and in no part presented any vestige of a habitation. It was in acting on this spot that the dredge brought to light an artificial bed, more than two feet in thickness, which overlaid the primitive bottom of the lake. This bed was composed of gravel, pebbles, flints of angular forms or broken by the human hand, and stones of from one to two feet in diameter; in the midst of which were found the remains of piles of oak and fir, wood charcoal, bones, innumerable stags' horns, cut or notched, fragments of pottery, and instruments of stone and bone. At some spots the dredge cast up mud containing seeds, with numerous *débris* of reeds and of small branches which had, without doubt, formed the covering of habitations. Lastly, some articles of bronze were discovered towards the north-east end of the site. These thousands of implements of the "stone period," stratified in a layer whose formation must have required a lengthened period, prove that man had occupied the spot long previous to the introduction of metal. On the other hand, it follows, from the presence of bronze, and from the improvements introduced into the manufacture of some primitive tools, that these habitations have continued in existence down to the period of transition from stone to bronze.

The *axe* is the instrument which has performed the principal part in primitive industrial operations. It was used both for the chase and, in case of need, as a weapon of war; while it likewise



ANTIQUITIES DISCOVERED IN AN ANCIENT LAKE-HABITATION IN SWITZERLAND.

served for domestic purposes of the most various kinds. At Concise a very large number of specimens have been found. With some rare exceptions, their small dimensions excite surprise. The cutting edge measures only, on the average, 15 to 20 lines, at the most, in breadth. The kind of stone employed by preference is serpentine, either opaque or semi-transparent. Several pieces, roughly hewn out, have fallen into the water before being finished; others have evidently been worn by long use; sometimes the edge is very sharp, but also often injured; and though some specimens present a remarkable finish, a large number have been manufactured with little care.

The discoveries at Concise, furnish us with very precise information as to the mode of affixing the handles. Occasionally the stone was simply fixed in a notch or mortise, made in a piece of stag's horn which served as the handle (see Plate, fig. 5). These handles are either straight or curved, according to the part of the horn used for the purpose. Two of the handles, cut into the form of a T, were armed with a sharp stone in one of the transverse ends of the horn; but most of the axes have been originally formed of three portions;—a piece of stag's horn two or three inches long received the stone at one end, while the other end, cut into four faces, entered into the mortise of the handle, as has already been observed in discoveries made at Estavoyer (Fig. 10). It is curious that the actual junction of these three portions has not been met with again at Concise, which, no doubt, has arisen from the handle having been made of wood, and not having lasted to the present time. But to compensate for this, the sockets for the handle, being of horn, have been preserved in large quantities: several of them bear the marks of wear caused by the grindstone in sharpening the edge of the axe; others being split by a blow, have been thrown aside; and more rarely (to judge at least by the pieces found) the stone has broken in the socket.

These *sockets* present several varieties of form. Some are nearly square; some have been cut in such a way as to produce a projection on one side, which rested on the handle (Fig. 2); others have been forked, as if for the purpose of introducing a wedge to fasten them more firmly in the opening which received them. One specimen is pierced with a transverse hole, no doubt in order to fasten it by a peg; and another, pierced parallel to the edge of the stone, received the handle in this opening of an oval form.

The *stone chisels*, which are likewise very abundant, are distinguished from the axes by having their edges of less width. Most of them are made of serpentine and of oriental nephrite or jade (Fig. 18). They are fixed into the end of a piece of stag's horn, two or three inches long; and the opposite end has sometimes a circular longitudinal hole, into which was probably introduced a cylindrical body intended to protect the handle from the blows of a hammer.

Small pieces of unwrought stone, nearly cylindrical in form, have been hafted in the same manner as the chisels. One of these cylinders is close to the end of a stag's horn pierced transversely to receive a handle, and may have been used as a hammer. In these primitive ages we may readily conceive that the place of the *hammer* would frequently be supplied by the first stone that

came to hand; nevertheless, these stones sometimes received forms more specially adapted for their intended use. Thus, we find fragments which have nearly the shape and size of the modern sledge-hammer. As for the stone-hammers pierced with a hole, we ought to consider them as belonging to the transition period.

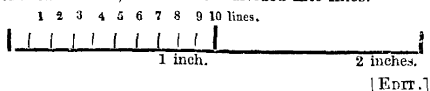
Paring-knives (like the modern saddler's knife) have been in much use. Pieces of serpentine, nephrite, and flint, have in general received a curved edge. The handles, which are often longer than those of the chisels, are straight, or made of the ends of antlers, or pieces of stags' horn forked naturally. Dr. Clément has one of these paring-knives, made of jade, fixed sideways on an antler, like an axe, but the use of which can scarcely be doubted, as its edge is greatly curved. (Fig. 12.)

The *flints* employed in making different implements, are for the most part foreign to Switzerland. We find, however, numerous splinters, which show that the manufacture of at least a part of these instruments was carried on at Concise. *Scales*, four or five inches long, by from six to ten lines broad,† may have been used either as weapons or domestic implements. Some are hafted like *knife-blades*; others again of a shorter kind, and rounded at the end into the arc of a circle, and fixed to the extremity of a stag's horn, seem to have served rather as *scrapers*. A large blade of this description, thin, and fixed firmly in a handle, may be taken for a *saw*; others, fitted to straight or forked handles, pointed, and having a triangular section, answer the purpose of regular *piercers*. (Fig. 16). Among the pieces of flint with handles must also be mentioned a small pointed one, only two lines in length, the use of which it is not easy to conjecture, unless it may have been used as a kind of *graver*. (Fig. 15).

The *javelins* and *arrows* have occasionally had their heads made of flint. Arrow-points occur, presenting the form of an isosceles triangle, or of a lozenge, with or without notches on the obtuse angles; others are made with a point which penetrated into the shaft, and also with two wings something like those of a harpoon. The shafts of these missile weapons have in all cases disappeared.

There have been found at Concise numerous *disk-shaped stones*, from an inch to two-and-a-half inches in diameter, with a hole in the centre, like those which are usually regarded as weights for spindles. The use of these pieces, however, is in reality very doubtful. The disk is rarely perfect. One of these stones, nearly oval in shape, is pierced with two holes; another, which is in an unfinished state, is pierced only half-way through, and the hole, which has evidently been made by some instrument which had a revolving motion, is widened out into a funnel-shape on each side of

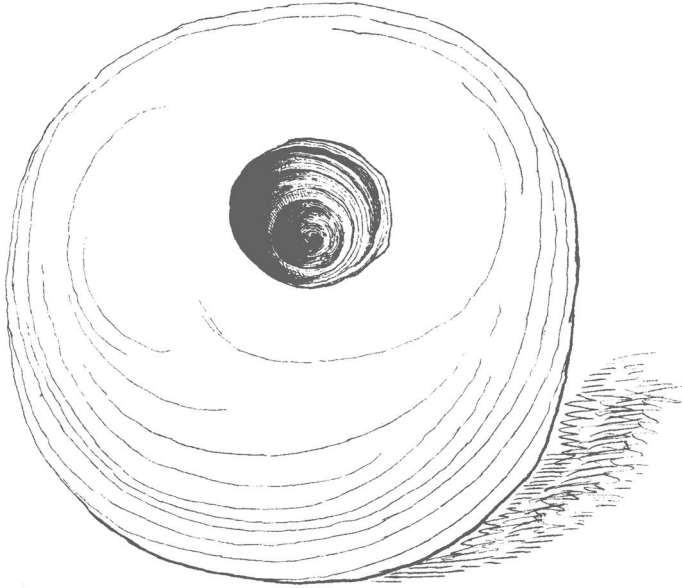
† All the measurements given in this paper are in Swiss feet, inches, and lines. The Swiss foot is divided into 10 inches, and the inch into 10 lines. The annexed represents two inches, one of them divided into lines.



the disk, presenting the form of two truncated cones.† Pebbles of sand-stone, and other kinds of stone more or less compact, have been used for making these disks, and there are some of bone and even of pottery. One specimen, made of wood, of an oval form, may perhaps have been used as a float.

† Many stones, exactly answering to this description, are found in the North of Ireland. They are always of a very hard material; and the holes, though generally placed about the centre of the stone, are not always so. No satisfactory hypothesis has yet been proposed for explaining

the use of these stones. That they were not intended to be pierced quite through their substance is evident from the fact, that very often the holes on each side are not opposite to each other, and they are sometimes very shallow. A specimen now before us seems to afford a solution of the problem.



We give a sketch of it, of the full size, showing the hole on one side, evidently produced by the continued motion of some revolving substance of a very hard nature, the inside of the cavity having a high polish, and showing a great number of concentric scores or slight grooves. This stone was found along with a *quern* or ancient hand-mill, when ploughing up an old rath or mound near Carrickfergus. Our belief is, that it was employed for supporting the spindle of the revolving or upper mill-stone, which has gradually

worn a conical hole into its substance to the depth shown, about three quarters of an inch. On the opposite of the stone is another hole, perfectly similar, but more than an inch nearer to the edge, and worn in an *oblique direction*. It is therefore probable that this latter was the side of the stone first used; but that, in consequence of the oblique wearing of the hole causing the mill to be unsteady, the stone was turned, and a new hole commenced on the opposite side.—[EDRR.]

Bone *needles*, straight or slightly curved, and from three to six inches long, are found provided with an eye, or even two eyes, near the end farthest from the point. In one of these needles the bone has been scooped out on the two sides of the head, in order that the thread or cord, passing through the eye, might not impede the action of the needle (Fig. 11). Another needle, pointed at both ends, is pierced with an eye in the middle of its length, where it thickens perceptibly. The eye is sometimes also near the point, as we may still see in some saddlers' needles.

We may, no doubt, give the name of *polishers* to teeth found driven up to the enamel in handles of stag's horn. The incisor teeth of ruminant animals have been used in preference (Fig. 6); however, pig's teeth have also been employed for the same purpose, and even one human tooth. Bones and stag's horn, in various shapes, have evidently answered a similar purpose.

Among the *undetermined objects* in bone and horn are several specimens, with or without a hole, cylindrical either entirely or in part, sometimes surmounted by a head or button, or sometimes merely in the form of thick scales. One of these objects deserves special attention, from the delicacy of its workmanship. It is a small piece, about seven or eight lines in length, and less than two lines in diameter, pierced lengthwise like a tube, whose cylindrical ends are hooped by two little straps, contrived at the time of cutting the bone (Fig. 17). The manufacturing of this article, which would not seem anything remarkable at any other epoch, is very interesting when we consider the delicate nature of the workmanship, and the limited means possessed by primitive workmen.

We have already remarked that the numerous splinters of flint and of various other kinds of stone, as well as the unfinished implements which have been found here, prove that the locality of Concise was at one time the site of a manufactory; and we arrive at the same conclusion when we examine the large quantity of pieces of stag's horn, prepared for the handles of different tools, these handles being more or less complete, or sometimes merely roughed out. They bear unequivocal marks of some instrument whose edge has produced a notch generally striated. We can also distinguish the action of the flint-saw and of the grind-stone. Some of them have received a polish which antiquity has not been able to destroy; and several have been nibbled by the teeth of some gnawing animal, most probably the rat, against whose attacks, we may readily conceive, the lake-habitations were not more secure than ships are at present.

The weapons found at Concise are peculiarly interesting. The *daggers*, in spite of the imitations of them made by the workmen, are known to be quite genuine, several having been taken out of the lake in a perfect state. The blade has been made from the shank-bone of an animal, first of all cleft, then cut and sharpened into the form of a large round bodkin, or triangular like a stiletto, or else like a willow-leaf. These blades are hafted with stag's horn, and this arrangement is not devoid of elegance. (Fig. 1). The entire length of the daggers varies from seven to thirteen inches. Other weapons, similar in all respects to these daggers, have a blade curved like the rib of a

skeleton. Their use is not easy to determine, as they neither answer for cutting or thrusting. It is likely that these blades were originally straight, and have gradually yielded to the pressure of some heavy substance, which has at length given them a curved form not belonging to the piece of bone used in making them. Some stout blades of stag-horn, deeply toothed on one side or both, (Fig. 13), remind us of some spear-heads discovered in the valley of the Mississippi. Another beautiful specimen, made of bone, about nine inches long, presents the same appearance. Others, made of split bone, from four to five inches in length, have also the lanceolate form; and the socket is formed so as to admit of the handle being fastened along the marrow-hole, by ligatures passing into grooves cut transversely on the bone (Fig. 14); a small hole is likewise placed at the end for receiving a peg.

The bone *arrow-heads* (Fig. 7) present the same peculiarities as the specimen last described. The form of some of them is lanceolate; others are provided with a single wing like that of a harpoon (Fig. 9); one has a point which entered into the shaft; some fitted in after the manner of a tenon and mortise (Fig. 8); and several have a degree of finish which we are rather surprised to find in missile weapons, which must so often have been altogether lost by the hunter or the warrior. The same remarks are applicable to the flint arrow-heads, which required no less labour in the manufacture; and it is to be presumed, that a part of the bone splinters, sharpened in the form of bodkins, were fixed to reeds as arrows, as, no doubt, at that period, all kinds of wood were made use of for this purpose.

Some pieces of bone have been found at Concise, which are scooped out and terminated by a button: these appear to be the mounting of the ends of *bows*, to which the string was fastened. Of the bow itself, being made of wood, no specimen has yet been found. Some stags' horns, deprived of a part of their branches, may be considered as a kind of weapon or club.

Bone has been employed likewise for making *personal ornaments*, of which some remains are still met with. Two hair-pins, ornamented with a head, resemble those of the "bronze period." The same use may, no doubt, be attributed to some small bone stems of a curved shape, pointed at one end, and surmounted by an egg-shaped head. These articles present one peculiarity, namely, a small ring on the convex side of the implement, not far from the point, and which has been cut out of the solid bone (Fig. 9). This ring, which is a part of the pin itself, though interfering with its easy movement, would facilitate its adjustment as an ornament, by permitting a cord to pass through it from the head of the pin. Pins of bronze, very similar to these, but having the ring nearer to the head, have been met with in Silesia.

One piece of bone cut in the form of a ferrule is exactly of the size of a *finger-ring*; another, which is highly polished and of a rounded shape, but unfortunately broken, must be the fragment of a *bracelet*.

Several beads of bone and horn, pierced with a hole, and some of them in an unfinished state, have formed portions of *necklaces*. Beads of stone are likewise found.

An ornament of a much more delicate description consisted of small oval scales, from 9 to 12 lines in length, cut out of the enamel of large teeth, and pierced with one or two holes for suspending or attaching them to the dress.

Teeth, particularly those of the bear, have been bored or notched so as to be worn as a kind of ornament, but probably also as *amulets*, as they are known to have been in subsequent ages, and especially during the latter part of the Pagan period.

The *pottery* of this primitive age presents everywhere almost the same characteristics, and does not differ at Concise from what has been discovered at other contemporary sites explored in Switzerland. Judging by the fragments found, and by six vessels which are nearly perfect, the cylindrical shape has been greatly used; however, several vessels, rounded in the bottom, are without feet. We do not meet with the clay supports which were used at a later period; but sometimes we find little protuberances, pierced with two holes, through which cords might have been passed for suspending the vessels, as is observable in the most ancient pottery of the North. Five of the perfect specimens measure only one or two inches in height, and fourteen to thirty lines in diameter. Three small vessels, two of them cylindrical and the other bell-mouthed, are of bone, or rather stag's horn. One of these has a little loop standing out from the rim, and must have had a wooden bottom fastened at three points, the holes for which are visible at the lower part of the vessel.

A *spherical hollow ball*, as large as the two fists, made of clay kneaded up with charcoal, and pierced with a hole, reminds us of the articles which have been considered by some as fire-balls.

The large number of different bones that have been collected afford material for a special investigation, which will throw much light on the *Fauna* of the country at the epoch of the earliest human habitations. The great use made of the horns of the stag shows us how common that animal must have been. The existence of the bison has been demonstrated by Professor Desor. Horns of the roe-buck are not uncommon. We have the teeth of the bear, the wolf, the wild boar, the beaver, and of various *carnivora* and *rodentia*. Among domestic animals, we find many remains of the ox. The horse, on the other hand, was scarce; but the discovery of a molar tooth of this animal leaves no doubt of his former existence. Of the goat, sheep, pig, and dog, many bones have been found.

It is, no doubt, to the destruction of the habitations or to some armed struggle that we must attribute the presence, in the midst of these *débris*, of three fragments of human skulls and two jaw-bones, one of them that of a man, the other of a child. It is to be regretted that these fragments are too imperfect for any deduction to be drawn regarding the race of this primitive people.

The rapid working of the steam-dredge has not at all times permitted as much careful attention to be paid, as would have been desirable, to many remains of a kind less striking to the

eye, but nevertheless having much interest, such as grains of corn, or fruits gathered for food. I am only able to mention the hazel-nut, the beech-nut, and the stone of the plum. Some filaments, probably of hemp, if not of the bark of some tree, suggest their own probable use, when we associate them with the bone-needles.

During the latter part of the work executed at Concise, the dredge, in advancing towards the north-east of the site, brought up several articles of bronze, from which we may infer that these habitations continued to be occupied until the introduction of that metal. Besides these, there have been discovered some stone implements which belong to the "transition period," during which, metals, though still scarce, were employed in perfecting the productions of primitive industry.

I do not hesitate to ascribe to this period the *axes* and *hammers* made of serpentine, pierced with a hole, which received the handle. These implements, which are seldom found uninjured, are 5 or 6 inches long, and are cut in the form of a hatchet at one end and of a hammer at the other. Judging by the fragments which are preserved, we can see that they frequently broke at the hole, and that this has also occurred during the operation of manufacturing them. The portions of unfinished ones show that the hole was made by a boring-tool, which hollowed out a circular groove, so as to form in the interior a core shaped like a truncated cone; and an attentive examination of the sides of the hole enables us to ascertain beyond doubt that the boring was performed by a rapid rotatory motion. This motion must have been given rather to the stone itself than to the borer, which latter would have had to describe a circle. To understand this method of boring, it is sufficient to refer to the present mode of hollowing out vessels from pot-stone. This consists in fixing the ends of a cylindrical block between the points of a horizontal axis, so that, when made to revolve, the block is acted on by a borer of soft metal placed parallel to the axis. This borer is then made to advance by little and little, until the desired depth has been obtained in the grooving produced by the friction of the tool. It is unnecessary to describe here the process by which the bottom of the vessel is made. The core which has been taken out is then placed once more between the points of the axis, and hollowed out in its turn; and it is in this way that are manufactured those sets of vessels which fit inside of each other. This kind of boring-lathe, of the most primitive kind, must date from a remote antiquity; for we know that the lathe has been known as a tool from very ancient times. The collection of Baron Renberg, at Prague, contains some stone axes, found, along with their cores, at the site of a manufactory of these implements in Bohemia. These cores when replaced in the holes from which they had been taken (which was easy to verify by the corresponding veins of the stone) left so little play-room, that it was evident they could only have been detached by a metal point, and not by a hollow cylinder, which could not have given to the hole its conical form, now quite apparent. Instead of the soft iron which is employed now-a-days in such operations, the ancients used copper or bronze; and, of course, water and silicious sand were likewise employed in the process.

While it is certain that this process of boring must have been the one used in many cases, it is also clear that it was not the only one. Many stone axes (not found at Concise, but at other places) have been bored by more primitive methods; and when the hole is oval, it, of course, cannot have been produced by a rotatory motion.

Sometimes the cores produced in the boring of axes have been made use of; one of them, found at Concise, was fixed on a disk made of stag-horn, but it is not easy to say for what purpose.

Some *piercers*, made of copper or slightly alloyed bronze, from one to three inches long, and round or square, might seem at first sight to have been intended for boring stone; but, not to speak of their slenderness, other specimens of the same kind occur at a period when all recollections of the primitive age have disappeared.

Eight *pins* of bronze, from 25 lines to a foot in length, are surmounted by heads, either round, conical, or spindle-shaped. They have generally fine marks engraved on them, such as do not belong to the infancy of art.

A *fibula*, which has lost the tongue, is made of bronze wire, the two ends of which are rolled into a flat spiral, presenting the form of a pair of spectacles.

A *ferrule*, three small *rings*, a convex *button*, a *bead* for a *necklace*, and a *knife*, complete the series of articles in bronze found at Concise. The knife, which is 72 lines long, and elegantly curved, is ornamented on the back with *striæ* and zig-zag lines, and, on the two sides of the blade, with parallel lines, dots, and portions of circles.

In the beginning of the present century, Captain Pillichody found, not far from this spot, but a little farther in the lake, beside the remains of a submerged canoe and of stakes which still projected up from the mud, a beautiful bronze sword, which has been deposited in the museum of Neuchâtel. It would thus appear that the habitations of the "stone period" were destroyed at the very time of the introduction of bronze, as only about a score of articles made of this substance have been discovered, while the others have been found in thousands. After this destruction, new habitations were raised during the "bronze period," at a greater distance from the shore of the lake. The higher state of preservation of the piles (notwithstanding their great antiquity) would, of itself, indicate a later period, which must have terminated, however, previous to historic times. On the other hand, the thickness of the artificial bed of materials, which covers the first of these sites, represents a period of time of considerable duration, and may correspond with the first migrations from the East to the West.

If we take a general view of the discoveries lately made at Concise, we shall see that this locality was a manufactory of some importance; and that the productions of industry present a great variety, considering the small number of materials employed. It is not uncommon to find in Europe implements of stone: the museums of the North have collected thousands of them; but the case is not so as regards complete tools with their handles, such as axes, chisels, knives, saws, borers,

polishers, and daggers. Many features are common to the "stone period" in all countries where its remains are found; nevertheless the very nature of the materials employed causes several modifications. Nothing can equal the beauty of some of the flint implements found on the shores of the Baltic Sea; but several of those found at Concise, made of bone, are unknown in that district. The abundance of flint in the North gave rise to the manufacture of daggers of a kind not met with in Switzerland; but, instead of these, we find blades of bone fixed on elegant handles of stag's horn. In the North the spear-heads of flint are remarkable. In Switzerland, we see the forms of our modern weapons reproduced in bone. We are struck with surprise on seeing so many forms exhibiting, as it were, the prototypes of those still in use in different branches of industry, and we are led to ask whether in this there may not be some reminiscence of a more advanced state of civilization, whose origin must be sought in the East.

The use of many of the articles cannot now be precisely determined; but we cannot fail to perceive that, besides being tools intended for cutting wood, several of them must have been employed for the manufacture of skins into clothing, straps, tent-covers, or the like. We should be wrong, however, in supposing that all kinds of cloth were unknown to these populations. At the site called Wangen, in the Lake of Constance, there have been found the remains of a kind of stuff, certainly of a very coarse description, composed of thick hemp twine or loose yarn, crossed like matting. The presence of hemp indicates a certain amount of agriculture; and this seems, contrary to all expectation, not to have been unpractised in these early ages, for, at several places belonging to the same epoch, there have been found barley and wheat in a carbonized state, which leaves no doubt on the subject.

These people, then, had as means of subsistence agricultural produce, the fruit and berries of various trees and shrubs, abundance of game, and lakes probably well stocked with fish. To these must be added all the resources derived from the domestic animals which occupied the cares of a pastoral life. The flocks were, no doubt, kept on the borders of the lakes, and required armed keepers, assisted by powerful dogs, to protect them from wild beasts. At the same time, it is evident that a store of winter provender, for the support of the flocks, would require to have been collected and sheltered from the snow and rain.

The discoveries at Concise, in conjunction with others of a similar kind made elsewhere in Switzerland, during the last few years,* are important for the historic data which they furnish respecting the mode of life of the first populations of Europe. All these implements, ornaments, and weapons, have the force of written documents, and are assuredly not less authentic than the assertions of historians. A manuscript would, indeed, give a name to this people, but would omit many particulars which we learn from this remarkable assemblage of objects, by whose means the antiquarian is able to reconstruct the history of man, in the same manner as the geologist restores that of eras before the creation of man by studying the strata of our globe.

* For an account of these, see *Pfahlbauten*, Zweiter Bericht, von Dr. Ferdinand Keller, Zurich, 1858.

Although the antiquities found at Concise are certainly remarkable for the variety of forms and of implements, still, when we compare them with the innumerable productions of civilized life, we cannot but be struck with the poverty of this primitive industry, and the limited means by which it was necessary to provide for the wants of man, for his food, clothing, lodging, and personal security, in a country infested by wild beasts. If a tree was to be felled, there was no implement available but a stone hatchet ; if it had to be stripped of its branches, and hollowed into a canoe, still a stone implement must be used, with perhaps the assistance of fire. What toil must have been required to procure the thousands of piles intended to support the cabins, for driving them into the soil, and for preparing timber for building. Although agriculture was no doubt little developed, it was nevertheless requisite to turn up the soil, to reap the harvest, and to provide for the wants of the inclement season. Game was abundant, but the chase was not without its dangers. The absence of metal rendered every kind of labour difficult. Stone could only be cut by stone, and, the more limited the means were, the more ingenuity was required in the methods of working. In our own day we find this dexterity still among some tribes of savages who are unacquainted with the use of metals. The products of their industry resemble, in many respects, those of the first inhabitants of Europe. But these last were not in the savage state, which is characterized by immobility and isolation, or, in other words, by the absence of all progress and of all improving intercourse. Among savages a new generation adds nothing to the knowledge of the preceding ones, and we know that men cannot remain stationary without in fact retrograding. It was not so with the first populations of the West ; for it is easy to show a marked progress during the "stone period." From the time that the first traces of a knowledge of metal make their appearance, we find it employed for improving their primitive tools. When we study as a whole the various materials employed, we see not only that each tribe manufactured its implements, and made use of the stones which lay at hand, but that there existed a certain amount of commerce, as proved by the presence of foreign substances procured sometimes from the most various quarters. Switzerland is but scantily furnished with flint, but she supplied herself with it from a distance, often in the crude state, if we may judge by the splinters and roughly hewn pieces which are found at Concise : she even imported the yellow amber of the Baltic, and the nephrite of the East.

The discovery at Concise, notwithstanding the original and peculiar types which it embraces, is not an isolated fact in Switzerland ; and we are led to ask whether the first inhabitants confined themselves to the borders of the lakes. It is to be presumed that they grouped themselves by preference along the shores, in consequence of the security offered by lake-habitations ; but it would be an error to suppose that all the habitations of the same period were raised above the surface of the waters. Unquestionable traces of human habitations exist in caverns. The graves of this period, which are characterized by some peculiarities in the mode of burial, are occasionally met with at a considerable distance from the lakes, and it is reasonable to believe that they would

not be very distant from the dwelling of the defunct person. The same remark will apply to the implements of stone which are discovered here and there in the interior of the country.

These general observations may be sufficient to show that a history might be almost reconstructed from these *débris*—the authentic documents of a period the remembrance of which has been lost by written tradition. An attentive study of the antiquities anterior to our historic era shows, besides, that the population of the “stone period” preceded the invasion of the Celts, who have hitherto been regarded as the first inhabitants of Europe.

FREDERIC TROYON.

THE RUINS OF BUN-NA-MAIRGE (IN THE COUNTY OF ANTRIM):—GLEANINGS OF THEIR HISTORY.

To see *Bun-na-Mairge* aright, it is not necessary to visit the venerable ruins by the light of the moon, as in the case of the far-famed Melrose Abbey, and, no doubt, many another structure similarly circumstanced. On the contrary, the pilgrim should approach this decayed shrine under the broad sunlight, and, if possible, during the afternoon of a calm, clear, autumnal day. There is nothing particularly attractive in the old monastic pile itself, if we except, perhaps, its appearance of crumbling helplessness, and its position amidst the graves of many a past generation. As the gate of the burying-ground closes after the visitor with a discordant creak, his eye rests on a grey, time-worn tablet in the eastern gable, and he presses forward to read the following inscription, now nearly illegible:—

“In Dei deiparaeque virginis honorem, illustrissimus ac nobilissimus dominus Randolphus Mac Donnell, comes de Antrim, hoc Sacellum fieri curavit.—an. Dom., 1621.”

There is no evidence that the Mac Donnells did anything for *Bun-na-Mairge*, further than to adopt it as a family burying-place, and build that small portion of it specified in the above inscription. Certain archæological writers, as Harris, Allemand, and De Burgh, erroneously state that the monastery was originally built by *Somhairle Buidhe* (Sorley Boy) Mac Donnell, in the year 1512. But that stout warrior was not born until some years later, and during his very stormy career he seems to have had neither time nor inclination for church building. Other authorities ascribe its erection to a chieftain of the Mac Quillins, at a somewhat earlier date, an opinion that is at least countenanced by the existence of a manuscript list of Irish Franciscan abbeys, in the British Museum,